About the Author

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etymologia

Carbapenem [kahr″bə-pen′əm]

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A class of broad-spectrum β-lactam antibiotics, structurally similar to penicillins, with the substitution of a carbon atom (*carba*-) for a sulfur atom. This substitution creates a double bond on the pentane ring, which becomes a pentene ring (*-penem*).

The first carbapenem, thienamycin (*theion* ["sulfur"] + *enamine* [an unsaturated compound that forms the backbone of the molecule] + -mycin [suffix for drugs produced by *Streptomyces* spp.]), was discovered in 1976 in culture broths of the newly recognized species *Streptomyces cattleya*. Thienamycin rapidly decomposes in the presence of water, which limits its clinical utility.

The first carbapenem approved for use in the United States was imipenem, the stable N-formimidoyl derivative of thienamycin, in 1985. Resistance to imipenem, encoded on a mobile genetic element, was first identified in *Pseudomonas aeruginosa* in Japan in 1991, and carbapenemase-producing organisms have since spread globally.

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